Early Journal Content on JSTOR, Free to Anyone in the World

This article is one of nearly 500,000 scholarly works digitized and made freely available to everyone in the world by JSTOR.

Known as the Early Journal Content, this set of works include research articles, news, letters, and other writings published in more than 200 of the oldest leading academic journals. The works date from the mid-seventeenth to the early twentieth centuries.

We encourage people to read and share the Early Journal Content openly and to tell others that this resource exists. People may post this content online or redistribute in any way for non-commercial purposes.

Read more about Early Journal Content at http://about.jstor.org/participate-jstor/individuals/early-journal-content.

JSTOR is a digital library of academic journals, books, and primary source objects. JSTOR helps people discover, use, and build upon a wide range of content through a powerful research and teaching platform, and preserves this content for future generations. JSTOR is part of ITHAKA, a not-for-profit organization that also includes Ithaka S+R and Portico. For more information about JSTOR, please contact support@jstor.org.

DESCRIPTIONS OF SOME NEW VERTEBRATA FROM THE BRIDGER GROUP OF THE EOCENE.

By E. D. Cope.

(*Read before the American Philosophical Society, August* 15, 1872.)

Mesonyx obtusidens. Cope.

Represented by a large part of the skeleton of an individual of about the size of the wolf (*Canis lupus*). The lumbar vertebræ display the short acuminate, and anteriorly directed diapophyses, characteristic of carnivora, while the astragalus resembles that of the same group. The claws are flat and not curved. The molar teeth exhibit two principal lobes and a thin rudimental at one extremity. The middle lobe is a compressed cone, the posterior, a cutting edge, but medially placed, and less acute than in *Hyænodon*, and the sectorial teeth of other carnivora, forming a less specialized cutting apparatus. The canines are well developed. A premolar is stout conic, with rudimental tubercle at base.

	M.
Length of a sectorial (crown)	0.018
Greatest width	.008
Elevation of crest	.006
Length of crown of a second	.015
Width	.0065
Elevation of middle lobe	.014
Length of crown of canine	.026
Diameter near base	.014

The number of the teeth cannot be determined, owing to the injured condition of the jaw bones. The enamel is entirely smooth.

Found on the bluffs of Cottonwood Creek, Wyoming.

Triacodon aculeatus. Cope.

Established on two teeth of the molar and premolar series. The molar is subtriangular at the base of the crown, one side being convex ; the opposite angle nearly right, and the two remaining sides flat. The crown is divided into three elevated trihedral cones, one at each angle. Their adjacent angles are acute, and the angle of union is fissured, like the same point in the sectorial tooth of a carnivora. The smaller lobes are of equal elevation, but the crown of one is expanded so as to be slightly spade-shaped. The enamel is smooth.

	M.
Elevation of highest cusp	0.009
" " shorter "	.007
Long diameter base of crown	.006
" " " flat side	.005

The premolar is smaller, with shorter cusps, and one of the laterals reduced to a rudiment.

This species is near the *T. fallax* of Marsh, but the tooth he describes is narrower in proportion to its length, and has the anterior lobe little over half as high.

HYOPSODUS PYGMÆUS. Cope.

Represented by a portion of the right mandibular ramus with the penultimate and ante-penultimate molars in perfect preservation. These teeth present four cusps, of which the inner are crescentoid in section, the outer conic. They are all elevated, and the outer anterior is in both teeth compressed and bifid; it receives an oblique ridge from the inner posterior. Enamel smooth.

	Lines.
Length penultimate molar	2
Width	1.5
Depth of ramus at do	3

This is a small species of the genus, being about equal to the *Hyopsodus paulus L.* The penultimate molar in the allied species, *Lophiotherium ballardii*, Marsh, measures 3.2 lines in length.

ANOSTIRA TRIONYCHOIDES. Cope.

This species is about the size of our existing *Chrysemys picta*. It differs from the *A. ornata*, Leidy, in various respects. Thus the sculpture of the costal bones is pit-like, as in some species of *Trionyx*, instead of striate-ridged. There is no keel on the pygal bone behind. The first marginal bone is longer, and does not exhibit the prominent shoulder seen in *A. ornata.* The marginal bones are not unlike those of that species, having central small tubercles, and radiating ridges. The species is not uncommon in the Bridger beds on Cottonwood Creek, Wyoming.

ANOSTIRA ŒDEMIA. Cope.

This species is nearly twice the size of the last. It is distinguished by its peculiar ornamentation. This consists of bosses or swollen portions of an oval shape, which stand transversely to the long axis of the body, from a quarter to a half an inch apart. They sometimes form short ridges, surface otherwise smooth. Locality same as the last species.

ANOSTIRA MOLOPINA. Cope.

This species is intermediate in size between the two last described. It is distinguished from both by its ornamentation. This consists of a delicate and rather scattered impressed punctation, on the costal bones. Across this extend oblique ribs extending in a diagonal direction outward near the extremities of the costals. The width of one of the costals is M. .023. The costals in this species display no suture for the marginals, and the extremity of the rib projects a very little.

TRIONYX CONCENTRICUS. Cope.

This species is not uncommon in the Bridger sandstone. It is well characterized by its sculpture, which is coarsely and distinctly pitted. Across the costal bones run parallel ribs, which enclose between them from three to one row of pits.

	M.
Width of a costal bone near the middle	.02
Thickness " " "	.003

The carapace is thin. Besides being smaller than the *T. guttatus*, Leidy, this species differs in its longitudinal ribs.

Trionyx thomasii. Cope.

This tortoise is again distinguished from all those known by its sculpture, this being very delicate and obscure when compared with the thickness of the carapace. It consists of small tubercles of more or less elongate form, which may or may not inosculate; eight may be counted in M. .01. Width of a marginal costal, .02; thickness on suture, .0055. So in *T. concentrica.* The costals have very little curvature. The faintness of the ornamentation is a marked character.

Dedicated to my former teacher, Joseph Thomas, M. D., author of Lippincott's Biographical Gazetteer, the Pronouncing Gazetteer of the World, Baldwin's Gazetteer, and other important works.

Found with the *T. concentrica*, on Cottonwood Creek, Wyoming.

Axestus byssinus. Cope

Genus et species novæ Trionychidarum.

This genus is represented by a species which is allied to *Trionyx*, but which differs in some important respects. The sternal bones are provided with an enamel stratum exterior to the usual dense layer of the bone, which is not sculptured. The post-abdominal bone has no sutural connections, but sends out tooth-like processes at its angles. The caudal vertebræ are procœlian, furnished with stout diapophyses and not very elongate; ball depressed, undivided. The cervical vertebræ are elongate and relatively very large. The claws are very large, and one at least flat and straight; the phalanges have broad trochlear surfaces, which indicate a moderate amount only of vertical movement. Both humerus and femur are curved and with extensive trochanters. The procoracoid and scapula are of equal lengths and the coracoid is much dilated distally.

Char. specif. The portions of plastron preserved are thin for the size of the animal, and all the bones are especially dense and smooth. The (?) post-abdominal has the free margins acute and serrulate. There is an (?) external gently convex edge with a long process extending backwards; and one long narrow one inwards. The enamel is white and is marked with decussating lines of osseous deposit, as in woven linen. This is not the result of wearing. The cervical vertebra is without spine; it is compressed in the middle and is without any pneumatic foramen.

	M.
Length cervical vertebra	.068
Diameter at middle	.020
“ “ end	.035
“ caudal do. at ball	.010
Length “ “	.023
“ of an ungueal phalange	.043
Proximal depth do.	.013
Length post-abdominal (broken)	.180
Width do.	.120

Locality of the last.

BAENA HEBRAICA. Cope.

Established on a large and nearly complete fossilized tortoise, which lacks the posterior lobe of the plastron, and a corresponding part of the carapace. The component elements are coössified.

The costal scuta are very wide, excepting the first pair, whose posterior margin is sigmoidally flexed. The anterior vertebral is concave behind, and has convex lateral margins. The marginal scuta in front are very narrow, but the fourth on each side is suddenly widened in front to meet the suture between the first and second costal scuta. The sutures are all perfectly regular. There are only four inframarginal scuta, of which the second from front is the largest, forming, with the third, an angle projecting inwards.

The carapace and plastron are smooth, excepting in the lines of the sutures of the costal bones. In this position there is, in each case, a series of short pit-like grooves parallel to each other, and transverse to the axis of the bone, forming figures like some Hebrew letters, the Greek *Π*, etc.

The borders of the carapace are obtuse, and the general form is almost round. The diameter is almost eighteen inches.

This species may only be compared with the *B. undata*, Leidy, with which it agrees in having the humeral scuta crowded to the front of the plastron, and having a common centre with the gulars, which they little exceed in size. It differs in having four instead of five inframarginals, regular sutures, a differently formed first costal, wider lateral marginals, and in the smooth carapace with the peculiar sculpture mentioned.

TESTUDO HADRIANA. Cope. Spec. nov.

Indicated by two individuals, one nearly perfect, the other chiefly represented by a complete plastron.

This proves the existence of a very massive species of the terrestrial genus Testudo. The plastron presents a short wide lip in front, which is turned outwards, forming a strong angle with the plane of the upturned front of the lobe. This lobe is bordered by a thickening of the upper surface, which cuts off the basin from the lip, as a high ridge. The posterior lobe is deeply bifurcate, each post-abdominal projecting as a triangle. There is a notch at the outer angle of the femoral scute. The hyposternal bone is greatly thickened within the margin above, and an elevated ridge bounds the basin of the plastron behind, as before. The middle of the plastron is thin.

The carapace is without marked keel or serrations. It is remarkable for its expanded and truncate anterior outline, which is nearly straight between two lateral obtuse angles.

Length carapace, M. .750 = 29 inches; width, .630.

The marginal scuta are narrow, and there is a large nuchal plate.

Same locality as the last.

PALÆOTHECA POLYCYPHA. Cope.

This genus and species of tortoises are indicated by vertebral, costal and marginal bones of very small individuals. These bones are, however, not only thoroughly ossified, but are very stout, indicating the adult age of the animal. The deeply impressed scutal sutures and heavy proportions, as well as the elevated carina of the carapace, indicate affinity with *Cistudo*, or perhaps, *Testudo*. As another generic character, it may be noted that the vertebral bones are subquadrate, and support the neural canal without intervening lamina.

The carina of the carapace is abruptly interrupted occasionally ; sometimes with, sometimes without, a pair of pits, one on each side. The marginal bones are well recurved, and the scutal sutures are deeply impressed on them.

	M.
Length of vertebral bone	.009
Width " "	.0085
Length marginal "	.01

This is the least of the tortoises of the Bridger Formation.

PALÆOTHECA TERRESTRIS. Cope.

Represented by three individuals, one of which may be regarded as the type. They are all thinner than the *P. polycypha*, and larger, being about equal to the *Aromochelys odoratus* of our ponds.

In the type specimen the carina of the vertebral bones is interrupted by a deep sutural groove, which is less pit-like than in *P. polycypha*. The bone itself is broader than long, being, perhaps, from the hinder part of the carapace. The clavicular (episternal) bone is preserved. It is characterized by the considerable and abrupt projection of that part enclosed by the gular scutum, which resembles what is sometimes seen in *Testudo*. The edge of this part is entire and acute. The posterior part of the projection forms a step-like prominence behind, on the superior or inner face. The bone is almost as wide as long, and the mesosternal causes a very slight median truncation, but overlapped much on the inner side. The gular dermal suture does not reach it.

	M.
Length vertebral bone	.009
Width " "	.018
Length episternal	.02
Width " (transverse to axis of body)	.017
Width of a costal	.011
Thickness proximally	.003

In a second specimen, a strong groove is seen to bound the lip of the front lobe of the plastron as in the species of *Notomorpha*. In it the marginal is seen to be stout, a little recurved, and sharp-edged. A vertebral differs from those described in being longer than wide.

In a third individual the gular lip is not so prominent as in the type, and the mesosternal bone truncates the clavicular extensively giving it thus a more elongate form. The gular scuta expands to its front margin. The marginal bone is stout and sharp edged, and is not so deeply impressed by the dermal suture, as in *P. polycypha*.

Length episternal	.016
Width "	.026
Length marginal	.011
Width "	.016

The three specimens are from the bluffs of Cottonwood Creek, Wyoming.

NAOCEPHALUS PORRECTUS. Cope.

Gen. et. sp. nov. Lacertiliarum.

Established on an incomplete cranium, with vertebræ found associated. No teeth are preserved, nor any part of the mandible. The remaining portions of the cranium are, however, highly characteristic.

The occipital descends posteriorly, and bears a pair of lateral ridges, which converge rapidly posteriorly. This bone is united with the parietal by suture, which is transverse; its outline is rectangular, so as almost to reach the frontals, which are prolonged backwards on each side the parietal, leaving but a narrow exposure of the posterior processes of the parietal. These extend backward, and are broken off in the specimen, but they probably formed parts of arches. The parietal is single, and there is no parietal fontanelle. The bone is triangular in outline with the apex anterior, dividing the frontals. These are contracted at the orbits, and have a projecting superciliary head; anteriorly they are thickened. The postfrontals are of remarkable form. They are massive, and compressed from before backwards; they rise considerably above the level of the front, and bear on their summits a cotyloid cavity, which is transverse to the axis of the cranium; the use of this projection is obscure. There is an exoccipital foramen, and a large one in the posterior part of the frontal opposite the postfrontal elevation.

The sphenoid is a compressed keel-shaped bone, rounded below, and with broad alæ along much of its length. The occipital condyle is subcordate depressed in outline, with a vertical obtuse angle in the middle and the sides somewhat plane.

A dorsal vertebra preserved has a single vertical capitular process, and a short hypapophysis. The neural canal is large, and the neurapophyses are attached by sutures. The cup is nearly round, very slightly transverse, and in vertical plane.

The cranium is smooth above, except the anterior part of the frontals, which are finely rugose.

This genus is more or less allied to the *Thecoglossa*, but better material will be requisite to decide the question of affinities fully.

Found with the preceding specimens.

	M.
Width cranium at postfrontals	.072
" parietal behind	.012
Depth postfrontal	.018
" pre-sphenoid anteriorly	.014
Diameter dorsal vertebra (cup)	.007

This genus differs from *Glyptosaurus*, Marsh, in the total lack of cranial shields, and from *Saniva*, Leidy, in the nearly round vertebral centra.